

Figure 1A.
Comparison of deduced amino acid sequences
of CBHs heavy chain genes with ID 1

CDR 1

CDR 2

(1) 1 10 20 30 40 50 60 71

heavy chain seq ID 1 (1) EVQLLEQSGAEVRKPGSSVKVSC KASGGTFSGHVTTWVRQAPGGGLEWMGESIPIFGSANYAQN YAKQKFRD

CBH-4B (1) --- ILVQSGAEVKKPGSSVKVSCRASGGSGFTYGIITWVRQAPGGGLEWVGGLVP----- LFDRPNYAKQKFD

CBH-4D (1) -- QVQVQSGTEVKKPGSSVKVSC KASGGPFN--- YSWVRQAPGGGLEWMGGIIT----- FDRENYAKQKFG

CBH-4G (1) -QVQVQSGAEVKKPGSSVKVSC KASGGTFSN-- SASWVRQAPGGGLEWMGIIP----- IFATTYYAQRLOG

CBH-5 (1) -QVQLVQSGAEVKKPGSSVKVSC KATCGKFSN-FISWVRQVPGGGLEWMGGVVP----- VFGGGSYPQKFG

CBH-7 (1) -QVQLVQSGAEVRKPGS-SVISCKS-GGTFNNYALSWVRQAPGGGLDWMGEITP----- FGTEKYAKQKFG

CBH-8C (1) -- QVQLQESGPLVKPSETLSLTCTVSGGSISS-- FFWRIQPGKGLEWIGYMS----- DTGNTNSSLKT

CBH-8E (1) -- QVQVQSGAEVKKPGSSVKVSC KASGGTFNSQPIITWVRQAPGGGLEWMGFIP----- IFTTNYAKQKFG

CBH 11 (1) -QVQLVQSGAEVKKPGSSVKVSC KASCGNIN-- IYSWVRQAPGGGLEWMG-IIP----- FTAKS---- QEQG

CBH-17C (1) -- EVQVEGGA VQ--- GGS LKVS CAASGFVFGSAIHWVRQAP-KGLDWVGIRSS--- SHNYATEY PVSVRG

Consensus (1) EVQLLEQSGAEVRKPGSSVKVSC KASGGTFSGHVTTWVRQAPGGGLEWMGESIPIFGSANYAQN YAKQKFRD

CDR 3

(72) 72 80 90 100 110 120 135

heavy chain seq ID 1 (72) RVSILADESTSTSFIELSNLRSDDTAVYYCARDPPR--- YCSAGRCYPGFFQQWGGTILVTVSS

CBH-4B (65) RVATADES-TSTAYMELSSLRFDDT-AYCAREADI--- VVGGSSYFDS

CBH-4D (61) RVIMTADESTINTHYMESGLRSEDTA-VYYCARDSGDFGAVIIGNHYVYGM DV

CBH-4G (64) RVTITADETS-TAYMELSSLQSDDTAVYYCKATGQG--LELHGSYYYAM DV

CBH-5 (66) RLITADDSR----- SYMISGRDDTAVYYCAREHGD--SS--GIYRRPLDY

CBH-7 (64) RVTITADESN--- LMDSSLRSEDS---AYCARG---YIYGSFFDY

CBH-8C (61) RVIDTSKQFS----- LKNSVTAADTAVYYCARG----- LIARLLDYW

CBH-8E (64) RLTI TADS-TSTGYMELSSLRSED TAYYCAREWL G--SCRGGSCYSAFDI

CBH 11 (60) RVTITADKSTGD---Y-MSSLKSDDTAVYYCARVPGS--GT--YAYFDY

CBH-17C (63) RFTISRLDSR-TAYLQMSRTECTALYCIIPSGLVG---QLGHAFEF

Consensus (72) RVSILADESTSTSFIELSNLRSDDTAVYYCARDPPR YCSAGRCYPGFFQQWGGTILVTVSS

Note:

Identical sequence: yellow background and red foreground.

Conservative sequence: light green background and blue foreground

Figure 1B.
Comparison of deduced amino acid sequences
of CBHs heavy chain genes with ID 1

CDR 1

	(1)	1	8
HCV heavy seq ID 1 CDR 1(1)	---	<u>GHVIT</u>	
CBH 4B heavy CDR 1(1)	---	<u>TYGIT</u>	
CBH 4D heavy CDR 1(1)	----	<u>YS--</u>	
CBH 4G heavy CDR 1(1)	NSAS----		
CBH 5 heavy CDR 1(1)	NFIS----		
CBH 7 heavy CDR 1(1)	---	<u>NYALS</u>	
CBH 8C heavy CDR 1(1)	---	<u>SFFW-</u>	
CBH 8E heavy CDR 1(1)	---	<u>SCPTI</u>	
CBH 11 heavy CDR 1(1)	---	<u>IYS--</u>	
CBH 17 heavy CDR 1(1)	CSA	<u>I</u>	---
Consensus (1)		GHVIT	

CDR 2

	(1)	1	10	21
HCV heavy seq ID 1 CDR2 (1)	<u>ES</u>	<u>IF</u>	<u>FG</u>	<u>SANYACNYACKFR</u>
CBH 4B heavy CDR 2 (1)	GIV	<u>E</u>	<u>LD</u>	<u>RENYACKFC</u> ----
CBH 4D heavy CDR 2 (1)	--G	<u>I</u>	<u>LD</u>	<u>RENYACKFC</u> G----
CBH 4G heavy CDR 2 (1)	-I	<u>I</u>	<u>FI</u>	<u>FATTYYACRL</u> CG----
CBH 5 heavy CDR 2 (1)	GVV	<u>E</u>	<u>VF</u>	<u>CGGSYPCKFC</u> G----
CBH 7 heavy CDR 2 (1)	-E	<u>I</u>	<u>IF</u>	<u>EGIEKYACKFC</u> G----
CBH 8C heavy CDR 2 (1)	-YMS	<u>L</u>	<u>TG</u>	<u>NTINSSL</u> KT-----
CBH 8E heavy CDR 2 (1)	--F	<u>I</u>	<u>IFT</u>	<u>TNYACKFC</u> G----
CBH 11 heavy CDR 2 (1)	-I	<u>I</u>	<u>FT</u>	<u>AKSCFC</u> G-----
CBH 17C heavy CDR 2 (1)	---	<u>IRSS</u>	<u>SHNYATEY</u>	<u>FVSV</u> RG
Consensus (1)		ES	IF	FGSANYACNYACKFR

CDR 3

	(1)	1	10	21
HCV heavy seq ID 1 CDR 3 (1)	---	<u>DP</u>	<u>FRYCSAGRCYP</u>	<u>GF</u> <u>FC</u>
CBH 4B heavy CDR 3 (1)	----	<u>E</u>	<u>ADIV</u>	<u>VGSSYF</u> DS---
CBH 4D heavy CDR 3 (1)	DSG	<u>L</u>	<u>FG</u>	<u>AVIIGNHY</u> YGM
CBH 4G heavy CDR 3 (1)	-ATG	<u>CG</u>	<u>IELHGS</u>	<u>YYY</u> YAM
CBH 5 heavy CDR 3 (1)	-PHG	<u>D</u>	<u>SSGI</u>	<u>YRR</u> FLDY-----
CBH 7 heavy CDR 3 (1)	-----	<u>R</u>	<u>G</u>	<u>IYGS</u> PF
CBH 8C heavy CDR 3 (1)	-----	<u>G</u>	<u>L</u>	<u>IAAR</u> LLDYW----
CBH 8E heavy CDR 3 (1)	---	<u>D</u>	<u>WLGS</u>	<u>CRG</u> SCYSAFDI-
CBH 11 heavy CDR 3 (1)	-----	<u>V</u>	<u>PGS</u>	<u>GT</u> YAYFDY-
CBH 17C heavy CDR 3 (1)	----	<u>E</u>	<u>SGL</u>	<u>VG</u> CLGHAFEP--
Consensus (1)		DP	FRYCSAGRCYP	GF

Figure 2A.
Comparison of deduced amino acid sequences
of CBHs heavy chain genes with ID 2

CDR 1

CDR 2

		(1)	1	10	20	30	40	50	60	75
heavy chain seq ID 2	(1)	EVQLLECSGAEVKKPGSSVKVSCQVFGDTFSRYITCWLRCAPGCGFEWMGNIIIPVYNTF-NYAQKFQGRISTAD								
CBH-4B	(1)	---ILVCSGAEVKKPGSSVKVSCRASGGSFGTYGTTWVRCAPGCGLEWVGGIVELFDRE-NYAQKFQGRV-ATAD								
CBH-4D	(1)	---QVCVCSGTEVKKPGSSVKVSCKASCGGPFN---YSWVRCAPGCGLEWVGGLI-FDRE-NYAQKFQGRVITAD								
CBH-4G	(1)	---CVCVCSGAEVKKPGSSVKVSCKASCGTFEN---SASWVRCAPGCGLEWVG-ITFIFATI-VYAQRICGRVITAD								
CBH-5	(1)	---CVCVCSGAEVKKPGSSVKVSCKATGGKFSN-FISWVRCVPGCGLEWVGGVVFVFGG-GSYPCKFCGRITAD								
CBH-7	(1)	---CVCVCSGAEVRKPGS-SVISCKS-CGTFNNYALSWVRCAPGCGLDWMCETIEFGIE-KYAQKFQGRVITAD								
CBH-8C	(1)	---QVCVCSGELVKFSETLSLTCTVSGGSISS---FFWWIRCPGKGLEWIGYMSLTGNTN---SSLKTRVITISK								
CBH-8E	(1)	---QVCVCSGAEVKKPGSSVKVSCKASCGTFNSQPTTWVRCAPGCGLEWVG-FITIFTI-NYAQKFQGRITITIA								
CBH 11	(1)	---CVCVCSGAEVKKPGSSVKVSCKASGGNIN---YSWVRCAPGCGLEWVG-ITFETIAK---S---CFQGRVITAD								
CBH-17C	(1)	---EVCVEGCAVC---GGSVKVSCASGTFVSGSATHWVRCAP-KGLDWGIRSSSHNYATEYFVSVRGRFTISRDI								
Consensus	(1)	EVQLLECSGAEVKKPGSSVKVSCQVFGDTFSRYITCWLRCAPGCGFEWMGNIIIPVYNTF-NYAQKFQGRISTAD								

CDR 3

		(76)	76	90	100	110	128
heavy chain seq ID 2	(75)	DSTSTAYMELSSLRSEDTAVYFCARVVIPNAIRHIMGYYFDYWGQGTILVTVSS					
CBH-4B	(71)	ESTSTAYMELSSLRFDDTAYCAREADIVVGG-----SYFDS-----					
CBH-4D	(68)	ESTNTH-YMESGLRSEDTAVYFCARVSCDGFGA-VIIIGNHYVYGMV-----					
CBH-4G	(71)	ETS-TAYMELSSLQSDDTAVYCKAT-G-QGLELHGSYYYAMDV-----					
CBH-5	(72)	DSR-----SYMISGRDDTAVYCARPHGD-SS-GIYRRPLDY-----					
CBH-7	(71)	ESN-----LMDSSLRSEDS--AYCARG-----YIVGSPFDY-----					
CBH-8C	(68)	QFS-----LKNSVTAAATAVYFCARG-----LIAARLLDYW-----					
CBH-8E	(70)	DSTSTAYMELSSLRSEDTAVYFCARDWLGSCRG-SCYSAFDI-----					
CBH 11	(66)	KSTGD---YMSSLKSDDTAVYFCARVPGS-GT-YAYFDY-----					
CBH-17C	(70)	DSR---TAYLQMSRTECTALYCTIPS---GLVGQLGHAFEF-----					
Consensus	(76)	DSTSTAYMELSSLRSEDTAVYFCARVVIPNAIRHIMGYYFDYWGQGTILVTVSS					

Note:

Identical sequence: yellow background and red foreground.
Conservative sequence: light green background and blue foreground

Figure 2B.
Comparison of deduced amino acid sequences
of CBHs heavy chain genes with ID 2

CDR 1

	(1)	1	8
HCV heavy seq ID 2 CDR 1	(1)	---	<u>RYTIQ</u>
CBH 4B heavy CDR 1	(1)	---	<u>TYGIT</u>
CBH 4D heavy CDR 1	(1)	---	<u>YS</u> ---
CBH 4G heavy CDR 1	(1)	NSAS	----
CBH 5 heavy CDR 1	(1)	NFIS	----
CBH 7 heavy CDR 1	(1)	NYALS	---
CBH 8C heavy CDR 1	(1)	-SFFW	----
CBH 8E heavy CDR 1	(1)	---	<u>SCPIT</u>
CBH 11 heavy CDR 1	(1)	---	<u>YS</u> ---
CBH 17 heavy CDR 1	(1)	GSAIH	---
Consensus (1)			RYTIQ

CDR 2

	(1)	1	10	21
HCV heavy seq ID 2 CDR 2	(1)	<u>NIIFVYNIFNYACKFCG</u>	----	
CBH 4B heavy CDR 2	(1)	<u>GIVELFDR</u> ENYACKFC	----	
CBH 4D heavy CDR 2	(1)	--GIIFDRENYACKFCG	----	
CBH 4G heavy CDR 2	(1)	<u>TIIFIFAT</u> ITYYACRI	CG----	
CBH 5 heavy CDR 2	(1)	GVV <u>FVFGG</u> SYFCKFCG	----	
CBH 7 heavy CDR 2	(1)	<u>ETIFFGT</u> EKYACKFCG	----	
CBH 8C heavy CDR 2	(1)	-YMSLIGNIN	SSLKI-----	
CBH 8E heavy CDR 2	(1)	--FIFIFITINYACKFCG	----	
CBH 11 heavy CDR 2	(1)	<u>TIFFIAK</u> SCFCG	-----	
CBH 17C heavy CDR 2	(1)	---IRSSSHNYATIFYFVSVRG		
Consensus (1)		NIIFVYNIFNYACKFCG		

CDR 3

	(1)	1	10	21
HCV heavy seq ID 2 CDR 3	(1)	---	<u>VVIFNAIRH</u> IMGYYFLY-	
CBH 4B heavy CDR 3	(1)	---	EALIVVGS	---SYFLS-
CBH 4D heavy CDR 3	(1)	DSGLFGAVIICNHYYGMEV-		
CBH 4G heavy CDR 3	(1)	-ATGCGIELHGS	YYYIAMTV-	
CBH 5 heavy CDR 3	(1)	-----	FHGLSSGIYR	REFLDY-
CBH 7 heavy CDR 3	(1)	-----	RGYIYG	SPFLDY-
CBH 8C heavy CDR 3	(1)	-----	GLIAARLI	LLDYW
CBH 8E heavy CDR 3	(1)	---	DWLGSC	RGGS
CBH 11 heavy CDR 3	(1)	-----	VFGSGTYA	YFLDY-
CBH 17C heavy CDR 3	(1)	-----	PSGLVG	CLGHAFEP--
Consensus (1)			VVIFNAIRH	IMGYYFLDY

Figure 3A.
Comparison of deduced amino acid sequences
of CBHs heavy chain genes with ID 3

		CDR 1										CDR 2									
	(1)	1	10	20	30	40	50	60	70	80	(1)	1	10	20	30	40	50	60	70	80	
heavy chain seq ID 3	(1)	EVCLLECSGAEVKKPGSSVKVSCRASCGTIFSGHVISWVRCAFCQGLEWMGGS										ISFFGTISNSACKFCQ									
CBH-4B	(1)	---ILVCSGAEVKKPGSSVKVSCRASCGSEFTGYGITWVRCAFCQGLEWVGGI										-VPLEFLRENYACKFCQ									
CBH-4D	(1)	---CVCVCSGTIEVKKPGSSVKVSCRASCGFFN---YSWVRCAFCQGLEWMG-G										-II-FLRENYACKFCQ									
CBH-4G	(1)	CVCVCSGAEVKKPGSSVKVSCRASCGTFSN---SASWVRCAFCQGLEWMG-I										-IPIFAITTYACRLQ									
CBH-5	(1)	CVCVCSGAEVKKPGSSVKVSCRATCGKFSN-FISWVRCAFCQGLEWMGV										-VEVFSGGSYFCQFCQ									
CBH-7	(1)	CVCVCSGAEVRRKPGS-SVISCKS-CGTIFNNYALSWVRCAFCQGLDWMG-E										-ITFFGTEKYACKFCQ									
CBH-8C	(1)	CVCVCSGEGFLVKFSETLSLTCTVSCGSISS---FFWVIRCFGKGLEWIG---										-YMSDTIGNINSSLKT									
CBH-8E	(1)	CVCVCSGAEVKKPGSSVKVSCRASCGTIFNSCFITWVRCAFCQGLEWMG---										-FIPIFTINVACKFCQ									
CBH 11	(1)	CVCVCSGAEVKKPGSSVKVSCRASCGNIN---IYSWVRCAFCQGLEWMG-I										-IPIFAKIS---CFQ									
CBH-17C	(1)	---EVCVEGGAVC---GCSLKVSCASGFVFGSATHWVRCAFCQGLEWMG---										-KGLDWGIRSSSHNYATEYFVSVRG									
Consensus	(1)	EVCLLECSGAEVKKPGSSVKVSCRASCGTIFSGHVISWVRCAFCQGLEWMGGS										ISFFGTISNSACKFCQ									

	CDR 3														
	(69)	69	80	90	100	110	120	132							
heavy chain seq ID 3	(68)	RVSTTADESASTAYMELSSLRSEDTAITYYCAKDPPR---FCSGGNCYPGFFQWQGTILVTVSS													
CBH-4B	(65)	RVATADES-TSTAYMELSSLRFDIT---AYCAREADI---VVGSSSYFDS-----													
CBH-4D	(61)	RVIMTADESINTHYMESGLRSEDTA-VYYCARDSGDFGAVIIGNHYIYGMVDV-----													
CBH-4G	(64)	RVTTTADETS-TAYMELSSLSDDTAITYYKATGQG---LELHGSYYIYAMDV-----													
CBH-5	(66)	RLITADDSR-----SYMISGRDDTAITYYCARPHGD---S---SGIYRRPLDY-----													
CBH-7	(64)	RVTTTADESN---LMDSSLRSEDS---AYCARG-----YIYGSPPDY-----													
CBH-8C	(61)	RVITDTSKQFS-----LKNSTVTAADTAITYYCARG-----LIAARLLDYW-----													
CBH-8E	(64)	RLTTTADS-TSTGYMELSSLRSEDT-AYYCARDWLG---SCRGGSCYSAFDI-----													
CBH-11	(60)	RVITADKSTGD---YMSSLKSDDTAITYYCARVEGS---G---TVAYFDY-----													
CBH-17C	(63)	RFTTISRDDSR-TAYLQMNSTRTEDTALYCIIPSGLVG---QLGHAFEF-----													
Consensus	(69)	RVSTTADESASTAYMELSSLRSEDTAITYYCAKDPPR FCSGGNCYPGFFQWQGTILVTVSS													

Note:

Identical sequence: yellow background and red foreground.

Conservative sequence: light green background and blue foreground

Figure 3B.
Comparison of deduced amino acid sequences
of CBHs heavy chain genes with ID 3

CDR 1

	(1)	1	8
HCV heavy seq ID 3 CDR 1(1)	<u>CHVIS</u>	---	
CBH 4B heavy CDR 1(1)	---	TYGII	
CBH 4D heavy CDR 1(1)	----	YS--	
CBH 4G heavy CDR 1(1)	NSAS	----	
CBH 5 heavy CDR 1(1)	NFIS	----	
CBH 7 heavy CDR 1(1)	NYALS	---	
CBH 8C heavy CDR 1(1)	-SFFW	---	
CBH 8E heavy CDR 1(1)	---	SCFII	
CBH 11 heavy CDR 1(1)	---	TYS--	
CBH 17 heavy CDR 1(1)	<u>CSATH</u>	---	
Consensus(1)	CHVIS		

CDR 2

	(1)	1	18
HCV heavy seq ID 3 CDR 2 (1)	<u>GSISFFGTSNSA</u>	<u>CKFQG</u>	
CBH 4B heavy CDR 2 (1)	<u>GIVPLFDRPN</u>	<u>YACKFQD</u>	
CBH 4D heavy CDR 2 (1)	---	<u>GILFDRENYACKFQG</u>	
CBH 4G heavy CDR 2 (1)	--	<u>IIPDFATYYACRLQG</u>	
CBH 5 heavy CDR 2 (1)	<u>GVVPVFGGGSYP</u>	<u>CKFQG</u>	
CBH 7 heavy CDR 2 (1)	--	<u>ETIPFGTEKYACKFQG</u>	
CBH 8C heavy CDR 2 (1)	--	<u>YMSDTGNINSSLKT--</u>	
CBH 8E heavy CDR 2 (1)	---	<u>FIPIFTINACKFQG</u>	
CBH 11 heavy CDR 2 (1)	-----	<u>IIPFTAKSQFQG</u>	
CBH 17C heavy CDR 2 (1)	<u>IRSSSHNYATEYPVSVRG</u>		
Consensus (1)	GSISFFGTSNSA	CKFQG	

CDR 3

	(1)	1	10	21
HCV heavy seq ID 3 CDR 3 (1)	---	<u>DDFRFCSCGNCY</u>	<u>FGFFCQ</u>	
CBH 4B heavy CDR3 (1)	---	<u>EADIVVGGSS</u>	<u>YFLS----</u>	
CBH 4D heavy CDR 3 (1)	<u>LSGDFGAVII</u>	<u>GNHYYYG</u>	<u>MTV-</u>	
CBH 4G heavy CDR 3 (1)	<u>ATGCGIELHG</u>	<u>SYYYAMTV-</u>		
CBH 5 heavy CDR 3 (1)	-----	<u>EHGDS</u>	<u>SGIYRRELDY-</u>	
CBH 7 heavy CDR 3 (1)	-----	<u>RGYIYGS</u>	<u>FFDY-</u>	
CBH 8C heavy CDR 3 (1)	-----	<u>GLIAARLL</u>	<u>LYW</u>	
CBH 8E heavy CDR 3 (1)	---	<u>DWLGSCRCG</u>	<u>SCYSAFLI-</u>	
CBH 11 heavy CDR 3 (1)	-----	<u>VFGSGTY</u>	<u>AYFDY-</u>	
CBH 17C heavy CDR 3 (1)	-----	<u>FSGLV</u>	<u>QCLGHAFEF-</u>	
Consensus (1)	DDFRFCSCGNCY	FGFFCQ		

Figure 4A.
Comparison of deduced amino acid sequences
of CBHs heavy chain genes with ID 4

		CDR 1										CDR 2																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
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heavy chain seq ID 4	(67)	R	F	I	V	S	R	D	N	S	R	D	T	V	F	L	Q	M	S	S	R	L	R	L	E	D	T	A	V	Y	Y	C	A	T	E	G	S	P	F	G	-	S	I	K	G	R	Y	L	E	N	W	G	Q	G	T	L	V	T	V	S	S																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
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Note:

Identical sequence: yellow background and red foreground.

Conservative sequence: light green background and blue foreground

Figure 4B.
Comparison of deduced amino acid sequences
of CBHs heavy chain genes with ID 4

CDR 1

	(1)	1	5
HCV heavy seq ID 4 CDR 1	(1)	<u>TYGMH</u>	
CBH 4B heavy CDR 1	(1)	<u>TYGIT</u>	
CBH 4D heavy CDR 1	(1)	<u>YS--</u>	
CBH 4G heavy CDR 1	(1)	<u>NSAS-</u>	
CBH 5 heavy CDR 1	(1)	<u>NFIS-</u>	
CBH 7 heavy CDR 1	(1)	<u>NYALS</u>	
CBH 8C heavy CDR 1	(1)	<u>SFFW-</u>	
CBH 8E heavy CDR 1	(1)	<u>SCPIT</u>	
CBH 11 heavy CDR 1	(1)	<u>IYS--</u>	
CBH 17 heavy CDR 1	(1)	<u>GSAIH</u>	
Consensus (1)		<u>TYGMH</u>	

CDR 2

	(1)	1	18
HCV heavy seq ID 4 CDR 2	(1)	<u>GISFDGSNCYYALSVKG</u>	
CBH 4B heavy CDR 2	(1)	<u>GIIVPLFDRENYACKFCQ</u>	
CBH 4D heavy CDR 2	(1)	<u>---GIIFDRENYACKFCQ</u>	
CBH 4G heavy CDR 2	(1)	<u>---IIPFIATTYYACRLQG</u>	
CBH 5 heavy CDR 2	(1)	<u>GVVFVFGGGSYPCKFCQ</u>	
CBH 7 heavy CDR 2	(1)	<u>---EITPFGTEKYACKFCQ</u>	
CBH 8C heavy CDR 2	(1)	<u>---YMSDTGNINSSLKT---</u>	
CBH 8E heavy CDR 2	(1)	<u>---FIFIFTINYYACKFCQ</u>	
CBH 11 heavy CDR 2	(1)	<u>-----IIFFLAKSCFCQ</u>	
CBH 17C heavy CDR 2	(1)	<u>IRSSSHNYATEYFVSVRG</u>	
Consensus (1)		<u>GISFDGSNCYYALSVKG</u>	

CDR 3

	(1)	1	10	20
HCV heavy seq ID 4 CDR 3	(1)	<u>EGSPFGSIKCRYYLEN</u>	<u>---</u>	
CBH 4B heavy CDR3	(1)	<u>---EALIVVCGSSYFLS---</u>		
CBH 4D heavy CDR 3	(1)	<u>LSGLFGAVIIGNHYYYGMLV</u>		
CBH 4G heavy CDR 3	(1)	<u>-ATGCGIELHCSYYYAMLV</u>		
CBH 5 heavy CDR 3	(1)	<u>-FHGLSSGTYRRFLDY----</u>		
CBH 7 heavy CDR 3	(1)	<u>-----RCYTYCSFFDY----</u>		
CBH 8C heavy CDR 3	(1)	<u>-----GLIAARLLLYW----</u>		
CBH 8E heavy CDR 3	(1)	<u>---DWLGSRCRCGSCYSAFLI</u>		
CBH 11 heavy CDR 3	(1)	<u>-----VFCSGTYAYFLY</u>		
CBH 17C heavy CDR 3	(1)	<u>--FSGLVGCLGHAFEF----</u>		
Consensus (1)		<u>EGSPFGSIKCRYYLEN</u>		

Figure 5A.
Comparison of deduced amino acid sequences
of CBHs light chain genes with ID 5

		CDR 1					CDR 2
	(1)	1	10	20	30	40	59
light chain seq ID 5	(1)	-AELTQSPGTLSPGERATLSCRASQSVSSN--					YLAWYQORPGQAPRLLIYGASSRAT
CBH 2 light	(1)	EIVLTQSPGTLSPGERATLSCRASQSVLG--					YLAWYQKPGQAPRLLIYGVS-RAT
CBH 4 B light	(1)	--ESVTQSGTSLSPGERATLSCRASQSVSST--					YVAWYQKPGQAPR--LLYDASIRAT
CBH 4 D light	(1)	-QSALTQSPASVSGSPGQSITISCTGTSSDIGGYNFVSWYQYDPKAPV--					VIIEVSKRPS
CBH 4 G light	(1)	DIQMTQSPSSLASVGDRTITCRASQGIDN--					FLAWYQKPGKVEKLLIYAASSLQS
CBH 5 light	(1)	DIQMTQSPSTLSASG-DRVAITCRASQSSWL----					AWYQKPGAPL--LIYKASINVQD
CBH 7 light	(1)	DVLMTQSPSSLASVGDRTITCRSQSISF----					LNWYQKPGKAP-LLISAASSLQS
CBH 8 C light	(1)	EIVLTQSPATLSPGERATLSCRASQSISR--					YLAWYQKPGQAPRLLIFDTSNRAT
CBH 8 E light	(1)	DIQMTQSPSSLSSVG--DVTITCRASQTINR--					YLNWYQKPGKAPKLLIYAASSLQS
CBH 11 light	(1)	DIQMTQSESTLSSVGDRTITCRASQSSINL--					WLAWYQOP--KAPELLIYKTSTSES
CBH 17 light	(1)	--SYVLTQTPVSVAPGKTARITCREPNIGTNS--					VHWFQORPGQAFVSIYYDDR--PS
Consensus	(1)	AELTQSPGTLSPGERATLSCRASQSVSSN					YLAWYQORPGQAPRLLIYGASSRAT

		CDR 3						
	(60)	60	70	80	90	100	112	
light chain seq ID 5	(57)	GIPDRFSGSGSGTDFTLTISRLEPEDFAVYYCQLYG--						NSRWTFGQGTKVEIK
CBH 2 light	(55)	GIPDRFSGSGSGTDFTLTISRLEPEDFAVYYCQYQY--						TSPFTFG-----
CBH 4 B light	(55)	GVIPDRFSGGSGSGTDFTLTISRLEPEDFAVYYCQYQY--						GSPFFGG-----
CBH 4 D light	(57)	GVSNRFSAS-SGNTASLTISGLQAEDEADYYCSSYTNNITPVIFGG--						-----
CBH 4 G light	(57)	GVPSRFSGSGSGSGTDFTLTISLQPEDVATYYCQKYN--						SAPFTFGP-----
CBH 5 light	(52)	GV---SRPSGSGSGTFTLTIS-LQPDDEATYYCQYIN--						NFSGTFGQ-----
CBH 7 light	(55)	GV-SRPSGSGSGTFTLTISLQPEDFATYYCQSY--						SPLLTFGG-----
CBH 8 C light	(57)	GIPARFSGSGSGTDFTLTISNLEPEDFAVYYCQORSNWPPALTFGG--						-----
CBH 8 E light	(55)	GV-SRFSGSGSGTDFTLTISLQ-DFATYYCQSFSTSAMYTFGQ--						-----
CBH 11 light	(54)	GVPSRPSGS-GSTFTLTISLQ-DFATYYCQHY--						SSSWTFGQ-----
CBH 17 light	(53)	GIPERFGSA-SGDTATLTISRVEVGDEADYSCQVWNNTNNHRGSSEL--						-----
Consensus	(60)	GIPDRFSGSGSGTDFTLTISRLEPEDFAVYYCQLYG						NSRWTFGQGTKVEIK

Note:

Identical sequence: yellow background and red foreground.

Conservative sequence: light green background and blue foreground

Figure 5B.
Comparison of deduced amino acid sequences
of CBHs light chain genes with ID 5

CDR 1

	(1)	1	14
light chain seq ID 5 CDR 1	(1)	-RASQSVSSNYLA-	
CBH 2 light CDR 1	(1)	-RASQVVLGYLA--	
CBH 4B light CDR 1	(1)	-RASQSVSSTYVA-	
CBH 4D light CDR 1	(1)	TGTSSDIGGYNFVS	
CBH 4G light CDR 1	(1)	-RASQGIDNFLA--	
CBH 5 light CDR 1	(1)	-RASQSSWLA----	
CBH 7 light CDR 1	(1)	--RSQSISSEFLN--	
CBH 8C light CDR 1	(1)	-RASQSISRYLA--	
CBH 8E light CDR 1	(1)	-RASQTINRYLN--	
CBH 11 light CDR 1	(1)	-RASQSINLWLA--	
CBH 17 light CDR 1	(1)	--REPNIQTNSVH-	
Consensus	(1)	RASQSVSSNYLA	

CDR 2

	(1)	1	9
light chain seq ID 5 CDR 2	(1)	-YGASSRAT	
CBH 2 light CDR 2	(1)	---GVSRA	
CBH 4B light CDR 2	(1)	--DASRA	
CBH 4D light CDR 2	(1)	--EVSRRPS	
CBH 4G light CDR 2	(1)	--AASSLQS	
CBH 5 light CDR 1	(1)	RASQSSWLA	
CBH 7 light CDR 2	(1)	--AASSLQS	
CBH 8C light CDR 2	(1)	--DTSNRA	
CBH 8E light CDR 2	(1)	--AASSLQS	
CBH 11 light CDR 2	(1)	--KTSTSES	
CBH 17 light CDR 2	(1)	---YDDRPS	
Consensus	(1)	YGASSRAT	

CDR 3

	(1)	1	17
light chain seq ID 5 CDR 3	(1)	--QLYGNSRWT-----	
CBH 2 light CDR 3	(1)	--QQYGTSPFFIFG----	
CBH 4B light CDR 3	(1)	--QQYGGSPFFGG----	
CBH 4D light CDR 3	(1)	SSYTNNITFVIFGG---	
CBH 4G light CDR 3	(1)	--QKYNAPFFIFGP---	
CBH 5 light CDR 3	(1)	--QYNNFSGTIFGQ----	
CBH 7 light CDR 3	(1)	--QCSYSPLLIFGG---	
CBH 8C light CDR 3	(1)	QQRSNWPPALIFGG---	
CBH 8E light CDR 3	(1)	QQSFSTSAMVIFGQ---	
CBH 11 light CDR 3	(1)	--QHYSSSWTIFGQ----	
CBH 17 light CDR 3	(1)	--QVNNINNHRRGSSEL	
Consensus	(1)	QLYGNSRWT	

Figure 6A.
Comparison of deduced amino acid sequences
of CBHs Light chain genes with ID 6

		CDR 1										CDR 2																																																		
		(1)	1	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200	210	220	230	240	250	260	270	280	290	300	310	320	330	340	350	360	370	380	390	400	410	420	430	440	450	460	470	480	490	500	510	520	530	540	550	560	570	580	590
light chain seq ID 6	(1)	-	A	E	L	T	Q	S	P	A	T	L	S	L	S	P	G	E	R	A	T	L	S	C	R	A	S	Q	---	S	V	N	K	Y	L	A	W	Y	Q	O	K	P	G	Q	A	P	R	L	I	Y	D	A	S	N	R	A	T					
CBH 2 light	(1)	E	I	V	L	T	Q	S	E	G	T	L	-	L	S	P	G	E	R	A	T	L	S	C	R	A	S	Q	---	R	V	L	G	Y	L	A	W	Y	K	O	K	P	G	Q	A	P	R	L	I	Y	G	V	S	-	R	A	T					
CBH 4 B light	(1)	-	-	E	S	V	T	Q	S	G	T	L	S	L	S	P	G	E	R	A	T	L	S	C	R	A	S	Q	S	---	V	S	T	Y	V	A	W	Y	Q	O	K	P	G	Q	A	P	R	-	L	I	Y	D	A	S	I	R	A	T				
CBH 4 D light	(1)	-	Q	S	A	L	T	Q	P	A	S	V	S	G	S	P	G	S	I	T	I	S	C	T	G	T	S	S	D	I	G	G	Y	N	F	V	S	W	Y	Q	Y	P	D	K	A	F	V	-	V	I	T	E	V	S	K	R	P	S				
CBH 4 G light	(1)	D	I	Q	M	T	Q	S	P	S	S	L	S	A	S	V	G	D	R	V	T	I	T	C	R	A	S	Q	---	G	I	D	N	F	L	A	W	Y	Q	O	K	P	G	K	V	E	K	L	I	Y	A	A	S	S	I	Q	S					
CBH 5 light	(1)	D	I	Q	M	T	Q	S	P	S	S	L	S	A	S	G	-	-	-	-	-	-	-	-	-	-	-	-	---	S	Q	S	S	W	L	A	W	Y	Q	O	K	P	G	A	P	L	-	-	L	I	Y	K	A	S	N	V	Q	D				
CBH 7 light	(1)	D	V	I	M	T	Q	S	P	S	S	L	S	A	S	V	G	D	R	V	T	I	S	C	R	S	-	Q	---	S	I	S	S	F	L	N	W	Y	Q	O	K	P	G	K	A	P	-	-	L	L	I	S	A	A	S	S	I	Q	S			
CBH 8 C light	(1)	E	I	V	L	T	Q	S	P	A	T	L	S	L	S	P	G	E	R	A	T	L	S	C	R	A	S	Q	---	S	I	S	R	Y	L	A	W	Y	Q	O	K	P	G	Q	A	P	R	L	I	F	D	T	S	N	R	A	T					
CBH 8 E light	(1)	D	I	Q	M	T	Q	S	P	S	S	L	S	S	V	G	-	-	-	-	-	-	-	-	-	-	-	-	---	T	I	N	R	Y	L	N	W	Y	Q	O	K	P	G	K	A	P	K	L	I	Y	A	A	S	S	I	Q	S					
CBH 11 light	(1)	D	I	Q	M	T	Q	S	E	S	T	L	-	S	S	V	G	D	R	V	T	I	T	C	R	A	S	Q	---	S	I	N	L	W	L	A	W	Y	Q	O	P	-	-	K	A	P	E	L	L	I	Y	K	T	S	T	S	E	S				
CBH 17 light	(1)	-	-	S	Y	V	L	T	Q	T	P	V	S	V	A	P	G	K	T	A	R	I	T	C	R	E	P	N	---	I	G	T	N	S	V	H	W	F	Q	O	R	P	G	Q	A	P	V	S	I	Y	Y	D	D	R	-	-	P	S				
Consensus	(1)	A	E	L	T	Q	S	P	A	T	L	S	L	S	P	G	E	R	A	T	L	S	C	R	A	S	Q			S	V	N	K	Y	L	A	W	Y	Q	O	K	P	G	Q	A	P	R	L	I	Y	D	A	S	N	R	A	T					

		CDR 3																																																																																																																																																																																																																																																																																																																																																																																																																											
		(60)	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200	210	220	230	240	250	260	270	280	290	300	310	320	330	340	350	360	370	380	390	400	410	420	430	440	450	460	470	480	490	500	510	520	530	540	550	560	570	580	590																																																																																																																																																																																																																																																																																																																																																																					
light chain seq ID 6	(56)	G	I	P	A	R	F	S	G	S	G	S	G	T	D	F	T	L	T	I	S	N	L	E	P	E	D	F	A	V	Y	Y	C	Q	Q	R	---	S	D	W	V	T	F	G	G	G	T	K	V	E	I	K																																																																																																																																																																																																																																																																																																																																																																									
CBH 2 light	(55)	G	I	P	D	R	F	S	G	S	G	S	G	T	D	F	T	L	T	I	S	R	L	E	P	E	D	F	A	-	Y	Y	C	Q	Q	Y	G	-	-	T	S	P	F	T	F	G	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Note:

Identical sequence: yellow background and red foreground.

Conservative sequence: light green background and blue foreground

Figure 6B.
Comparison of deduced amino acid sequences
of CBHs Light chain genes with ID 6

CDR 1

	(1)	1	14
light chain seq ID 6 CDR 1	(1)	<u>RASCSVNKYLA</u>	--
CBH 2 light CDR 1	(1)	<u>RASCRVLGYLA</u>	--
CBH 4B light CDR 1	(1)	<u>RASCSVSSTYVA</u>	--
CBH 4D light CDR 1	(1)	TGTSSDIGGYNFVS	
CBH 4G light CDR 1	(1)	<u>RASCGIENFLA</u>	--
CBH 5 light CDR 1	(1)	---RASCSSWLA	--
CBH 7 light CDR 1	(1)	--RSCSISSEFLN	--
CBH 8C light CDR 1	(1)	<u>RASCSISRYLA</u>	--
CBH 8E light CDR 1	(1)	<u>RASCIINRYLN</u>	--
CBH 11 light CDR 1	(1)	<u>RASCSINLWLA</u>	--
CBH 17 light CDR 1	(1)	--REFNIGTINSVH	--
Consensus	(1)	RASCSVNKYLA	

CDR 2

	(1)	1	7
light chain seq ID 6 CDR 2	(1)	<u>LASNRAT</u>	
CBH 2 light CDR 2	(1)	-GVSRAT	
CBH 4B light CDR 2	(1)	<u>LASIRAT</u>	
CBH 4D light CDR 2	(1)	EVSKRPS	
CBH 4G light CDR 2	(1)	AASSLQS	
CBH 5 light CDR 2	(1)	KASNVQD	
CBH 7 light CDR 2	(1)	AASSLQS	
CBH 8C light CDR 2	(1)	<u>LTSNRAT</u>	
CBH 8E light CDR 2	(1)	AASSLQS	
CBH 11 light CDR 2	(1)	KTSTSES	
CBH 17 light CDR 2	(1)	-YDDRPS	
Consensus	(1)	LASNRAT	

CDR 3

	(1)	1	17
light chain seq ID 6 CDR 3	(1)	<u>QQRSDWVT</u>	-----
CBH 2 light CDR 3	(1)	--QCYGTSPFTFG	----
CBH 4B light CDR 3	(1)	---QCYGGSPFFGG	----
CBH 4D light CDR 3	(1)	SSYTNNITFPVIFGG	----
CBH 4G light CDR 3	(1)	--QKYNAPFTFGP	----
CBH 5 light CDR 3	(1)	--QYNNFSGTFGQ	----
CBH 7 light CDR 3	(1)	--QCSYSPLLTFGG	----
CBH 8C light CDR 3	(1)	<u>QQRSNWPPALTFGG</u>	----
CBH 8E light CDR 3	(1)	<u>QCSFSTSAMYTFGQ</u>	----
CBH 11 light CDR 3	(1)	--QHYSSSWTFGQ	----
CBH 17 light CDR 3	(1)	--QVWNNINNHRSSEL	
Consensus	(1)	QQRSDWVT	

Figure 7A.
Comparison of deduced amino acid sequences
of CBHs Light chain genes with ID 7

	CDR 1																												CDR 2									
	(1)	1	10	20	30	40	58																															
light chain seq ID 7	(1)	-AELTQSPGTL SL SPGERATLSCGASQSVRSNY-LAWYQOKPGQAPRLLIYGVSSRAT																																				
CBH 2 light	(1)	EIVLTQSPGTL-LSPGERATLSCRASQVRLG--YLAWYQOKPGQAPRLLIYGVSSRAT																																				
CBH 4 B light	(1)	--ESVTQSGT SL SPGERATLSCRASQSVSS TY -VAWYQOKPGQAP-RLLYDASIRAT																																				
CBH 4 D light	(1)	-QSALTQPASVSGSPGQSITITICTGTSSDIGGYNFVSWYQYEDKAP-VVIYEVSKRPS																																				
CBH 4 G light	(1)	DIQMTQSPSSL SAS VGDRVITICRASQIDN-F-LAWYQOKPGKVEKLLIYAASSLQS																																				
CBH 5 light	(1)	DIQMTQSPSTLSASG-DRVAITCRASQSSWL---AWYQOKPGAPL--LIYKASNVQD																																				
CBH 7 light	(1)	DVLMTQSPSSL SAS VGDRVITICRSQSISSF---LNWYQOKPGKAP-LLISAASSLQS																																				
CBH 8 C light	(1)	EIVLTQSPATLSLSPGERATLSCRASQSI SR -Y-LAWYQOKPGQAPRLLIYDTSNRAT																																				
CBH 8 E light	(1)	DIQMTQSPSSLSSVG--DVTITCRASQTINR-Y-LNWYQOKPGKAPKLLIYAASSLQS																																				
CBH 11 light	(1)	DIQMTQSPSTL-SSVGDRVITICRASQ INL -WLAWYQOP--KAPELLIYKTSTSES																																				
CBH 17 light	(1)	--SYVLTQTPVSVA PG KTARITCREPNIGN--SVHWFQORPGQAFVSIYYDDR--PS																																				
Consensus	(1)	AELTQSPGTL SL SPGERATLSCGASQSVRSNY LAWYQOKPGQAPRLLIYGVSSRAT																																				

	CDR 3																												
	(59)	59	70	80	90	109																							
light chain seq ID 7	(57)	GIFLRFSGSGSGIDFTLTISRLEFEDFAVYYCCCYGSSPRTFCGCGIKLEIK																											
CBH 2 light	(55)	GIFLRFSGSGSGIDFTLTISRLEFEDFA-YVCCCYGTSFFIFG-----																											
CBH 4 B light	(55)	GVFLRFSGCGSGIDFTLTISRLEFEDFAVYYCCCYGSGSFFFCG-----																											
CBH 4 D light	(57)	GVSNR-FSASSGNIASLTISGLCAELEALYYCSSYINNITFVIFCG-----																											
CBH 4 G light	(57)	GVESRFSGSGSGIDFTLTISSTLCFELVATYYCKYNSA EF IFG-----																											
CBH 5 light	(52)	GV--S-RFSGSGIFLTITIS-LQFLDFATYYCYNNFSGIFCG-----																											
CBH 7 light	(55)	GV-SRFSGSGSGISFTLTISSTLCFEDFATYYCCG--SYSFLLIFCG-----																											
CBH 8 C light	(57)	GIFARFSGSGSGIDFTLTISNLEFEDFAVYYCCGRSNWF EP ALIFCG-----																											
CBH 8 E light	(55)	GV-SRFSGSGSGIDFTLTISSTLCF-DEATYYCCGSFSISAMYIFCG-----																											
CBH 11 light	(54)	GVESRFSGSGS-TEFTLTISSTLCF-DEATYYCHYSSSSWIFCG-----																											
CBH 17 light	(53)	GIFER-FGSASGLATLTISRVFVGL EA YSCGVNNNINNHRCSS EL ----																											
Consensus	(59)	GIFLRFSGSGSGIDFTLTISRLEFEDFAVYYCCCYGSSPRTFCGCGIKLEIK																											

Note:

Identical sequence: yellow background and red foreground.

Conservative sequence: light green background and blue foreground

Figure 7B.
Comparison of deduced amino acid sequences
of CBHs Light chain genes with ID 7

CDR 1

	(1)	1	14
light chain seq ID 7 CDR 1	(1)	<u>GASQSVRSNYLA</u>	--
CBH 2 light CDR 1	(1)	-RASQRVLGYLE	--
CBH 4B light CDR 1	(1)	<u>RASQSVSSIVVA</u>	--
CBH 4D light CDR 1	(1)	IGTSSDIGGYNEVS	
CBH 4G light CDR 1	(1)	-RASQGIDNLEA	--
CBH 5 light CDR 1	(1)	---RASQSSWLA	--
CBH 7 light CDR 1	(1)	--RSQSISSEFLN	--
CBH 8C light CDR 1	(1)	-RASQSISRYLEA	--
CBH 8E light CDR 1	(1)	-RASQTINRYLN	--
CBH 11 light CDR 1	(1)	-RASQSINLWLA	--
CBH 17 light CDR 1	(1)	--REPNIQTNSVH-	
Consensus	(1)	GASQSVRSNYLA	

CDR 2

	(1)	1	7
light chain seq ID 7 CDR 2	(1)	<u>GVSSRAT</u>	
CBH 2 light CDR 2	(1)	-GVSRAT	
CBH 4B light CDR 2	(1)	<u>DASIRAT</u>	
CBH 4D light CDR 2	(1)	EVSKEPS	
CBH 4G light CDR 2	(1)	AASSLQS	
CBH 5 light CDR 2	(1)	KASNVQD	
CBH 7 light CDR 2	(1)	AASSLQS	
CBH 8C light CDR 2	(1)	<u>DTSNRAT</u>	
CBH 8E light CDR 2	(1)	AASSLQS	
CBH 11 light CDR 2	(1)	KTSTSES	
CBH 17 light CDR 2	(1)	-YDDRPS	
Consensus	(1)	GVSSRAT	

CDR 3

	(1)	1	15
light chain seq ID 7 CDR 3	(1)	<u>CCYGSSPRT</u>	-----
CBH 2 light CDR 3	(1)	<u>CCYGTSEFT</u>	IFG----
CBH 4B light CDR 3	(1)	<u>CCYCGSEFF</u>	FG----
CBH 4D light CDR 3	(1)	SSYTNNITFVIFGG-	
CBH 4G light CDR 3	(1)	--CKYNSAPFTFGF-	
CBH 5 light CDR 3	(1)	--CYYNFSGTIFGQ-	
CBH 7 light CDR 3	(1)	--CCSYSPLLTIFGG-	
CBH 8C light CDR 3	(1)	<u>CCRSNWE</u>	FALTFGG-
CBH 8E light CDR 3	(1)	<u>CCSFST</u>	SAMYTIFGQ-
CBH 11 light CDR 3	(1)	--CHYSSSSWIFGQ-	
CBH 17 light CDR 3	(1)	<u>CVWNNIN</u>	NHRGSSEL
Consensus	(1)	CCYGSSPRT	

Figure 8A.
Comparison of deduced amino acid sequences
of CBHs Light chain genes with ID 8

		CDR 1										CDR 2									
		(1)	1	10	20	30	40	50	60	70	80	90	100	110	120						
light chain seq ID 8	(1)	-AELTQSPATLSVSPGERASLSCRASQ---SVGNNLAWYQOKPGQAPRLLIYGGNTRAT																			
CBH 2 light	(1)	EIVLTQSPGTI-LSPGERATLSCRASQ---RVLGYLAWYKQKPGQAPRLLIYGVSRAT																			
CBH 4 B light	(1)	--ESVTQSGTILSLSPGERATLSCRASQS--VSSTYVAWYQOKPGQAPR-LLYDASIRAT																			
CBH 4 D light	(1)	-QSALTQPASVSGSPGQSITISCTGTSSDIGGYNFWSWYQYEDKAPV--VIYEVSKRPS																			
CBH 4 G light	(1)	DIQMTQSPSSLSASVGDRTTITCRASQ---GIDNFLAWYQOKPGKVPKLLIYAASSLQS																			
CBH 5 light	(1)	DIQMTQSPSTLSASG-DRVAITCRA-----SQSSWLAWYQOKPGAPL--LIYKASNVD																			
CBH 7 light	(1)	DVLMTQSPSSLSASVGDRTTISCRS-Q---SISSFLNHWYQOKPGKAP-LLISAASSLQS																			
CBH 8 C light	(1)	EIVLTQSPATLSLSPGERATLSCRASQ---SISRYLAWYQOKPGQAPRLLIFDTSNRAT																			
CBH 8 E light	(1)	DIQMTQSPSSLSASVGDRTTITCRASQ---TINRYLNHWYQOKPGKAPKLLIYAASSLQS																			
CBH 11 light	(1)	DIQMTQSPSTL--SVGDRTTITCRASQ---SINLWLAWYQOP--KAPELLIYKTSTSES																			
CBH 17 light	(1)	--SYVLTQTPVSVAPGKTARITCREPN---IGTNSVHWFOQRPGQAPVSIYDDR--PS																			
Consensus	(1)	AELTQSPATLSVSPGERASLSCRASQ SVGNNLAWYQOKPGQAPRLLIYGGNTRAT																			

		CDR 3										
		(60)	60	70	80	90	100	110	120	130	140	
light chain seq ID 8	(56)	GTFDRFSGSGSGTEFTLTISSLQSEDFAVYFCCHYSTWPLTFGGCTKVEFK										
CBH 2 light	(55)	GTFDRFSGSGSGTDFTLTISRLEFEDEFA-YYCCCYCTSEFTFG-----										
CBH 4 B light	(55)	CVFLRFSGGSGTDFTLTISRLEFEDEFAVYYCCCYCGSEFFGG-----										
CBH 4 D light	(57)	CVSNR-FSASSGNIASLTISGLQAEDEADYICSSYINNITFVIFCG-----										
CBH 4 G light	(57)	CVESRFSGSGSGTDFTLTISSLQFELVATYYCCQYNSAFFTFGF-----										
CBH 5 light	(52)	CV--S-RFSGGSGTFTLTIS-LQFLDEATYYCCYYNNFSGTFGQ-----										
CBH 7 light	(55)	CV-SRFSGSGSGTFTLTISSLQFEDFATYYCCQSYSELTTFGQ-----										
CBH 8 C light	(57)	GTEARFSGSGSGTDFTLTISNLEFEDEFAVYYCCCRSNWEEFALTFGG-----										
CBH 8 E light	(55)	CV-SRFSGSGSGTDFTLTISSLQF-DEATYYCCQSFSTSAMVTFGQ-----										
CBH 11 light	(54)	CVESRFSGSGS--TEFTLTISSLQF-DEATYYCCHYSSSSWTFGQ-----										
CBH 17 light	(53)	GTEER-FGSASGLTATLTISRVEVGLEADYSCQVWNNINNHRCSSSEL----										
Consensus	(60)	GTFDRFSGSGSGTEFTLTISSLQSEDFAVYFCCHYSTWPLTFGGCTKVEFK										

Note:

Identical sequence: yellow background and red foreground.

Conservative sequence: light green background and blue foreground

Figure 8B.
Comparison of deduced amino acid sequences
of CBHs Light chain genes with ID 8

CDR 1

	(1)	1	14
light chain seq ID 8 CDR 1	(1)	-RASQSVGNNLA--	
CBH 2 light CDR 1	(1)	-RASQRVLGYLE--	
CBH 4B light CDR 1	(1)	-RASQSVSSTYVA-	
CBH 4D light CDR 1	(1)	TGTSSTLIGGYNFVS	
CBH 4G light CDR 1	(1)	-RASQGIILNFLA--	
CBH 5 light CDR 1	(1)	-RASQSSWLA----	
CBH 7 light CDR 1	(1)	--RSCSISSEFLN--	
CBH 8C light CDR 1	(1)	-RASQSSISRYLA--	
CBH 8E light CDR 1	(1)	-RASQTIINRYLN--	
CBH 11 light CDR 1	(1)	-RASQCSINLWLA--	
CBH 17 light CDR 1	(1)	--REPNIQINSVH-	
Consensus	(1)	RASQSVGNNLA	

CDR 2

	(1)	1	7
light chain seq ID 8 CDR 2	(1)	GGNTRAT	
CBH 2 light CDR 2	(1)	-GVSRAT	
CBH 4B light CDR 2	(1)	DASIRAT	
CBH 4D light CDR 2	(1)	EVSKRPS	
CBH 4G light CDR 2	(1)	AASSLQS	
CBH 5 light CDR 2	(1)	KASNVQD	
CBH 7 light CDR 2	(1)	AASSLQS	
CBH 8C light CDR 2	(1)	DTSNRAT	
CBH 8E light CDR 2	(1)	AASSLQS	
CBH 11 light CDR 2	(1)	KTSTSES	
CBH 17 light CDR 2	(1)	-YDDRPS	
Consensus	(1)	GGNTRAT	

CDR 3

	(1)	1	15
light chain seq ID 8 CDR 3	(1)	CHYSTWFLT-----	
CBH 2 light CDR 3	(1)	CCYGTSEFFIFG----	
CBH 4B light CDR 3	(1)	CCYGGSEFFFGG----	
CBH 4D light CDR 3	(1)	SSYTNNITFVIFGG-	
CBH 4G light CDR 3	(1)	QKYNSEFFIFGFP---	
CBH 5 light CDR 3	(1)	QYNNFSGTIFGQ---	
CBH 7 light CDR 3	(1)	--CCSYSPLLTFGG-	
CBH 8C light CDR 3	(1)	CCRSNWEFALTIFGG-	
CBH 8E light CDR 3	(1)	CCSFSTISAMYTFGQ-	
CBH 11 light CDR 3	(1)	CHYSSSSWTFGQ---	
CBH 17 light CDR 3	(1)	QVWNNINNHRSSEL	
Consensus	(1)	CHYSTWFLT	

Figure 9A.
Comparison of deduced amino acid sequences
of ID's heavy chain genes

	CDR 1										CDR 2																																																													
	(1)	1	10	20	30	40	50	60	71																																																															
heavy seq ID 1	(1)	E	V	C	L	L	E	C	S	G	A	E	V	R	K	F	G	S	S	V	K	V	S	C	K	A	S	G	G	I	F	S	C	H	V	T	T	W	V	R	C	A	P	G	C	G	L	E	W	M	G	E	S	I	F	I	F	G	S	A	N	Y	A	C	N	Y	A	C	K	F	R	D
heavy seq ID 2	(1)	E	V	C	L	L	E	C	S	G	A	E	V	R	K	F	G	S	S	V	K	V	S	C	V	F	G	C	I	F	S	R	Y	T	I	C	W	L	R	C	A	P	G	C	G	F	E	W	M	G	N	I	F	V	Y	N	T	F	---	N	Y	A	C	K	F	Q	G					
heavy seq ID 3	(1)	E	V	C	L	L	E	C	S	G	A	E	V	R	K	F	G	S	S	V	K	V	S	C	K	A	S	G	G	I	F	S	C	H	V	I	S	W	V	R	C	A	P	G	C	G	L	E	W	M	G	G	S	I	S	F	F	G	T	S	N	---	S	A	C	K	F	Q	G			
heavy seq ID 4	(1)	E	V	C	L	L	E	---	S	G	G	V	V	C	F	G	R	S	L	R	L	S	C	A	S	G	F	I	F	K	T	Y	G	M	H	W	V	R	C	A	P	G	K	G	L	E	W	V	A	G	I	S	F	D	G	S	N	C	Y	---	Y	A	L	S	V	K	G					
Consensus	(1)	E	V	C	L	L	E	C	S	G	A	E	V	R	K	F	G	S	S	V	K	V	S	C	K	A	S	G	G	I	F	S	C	H	V	T	T	W	V	R	C	A	P	G	C	G	L	E	W	M	G	E	S	I	F	I	F	G	S	A	N	Y	A	C	N	Y	A	C	K	F	R	D

	CDR 3																																																											
	(72)	72	80	90	100	110	120	132																																																				
heavy seq ID 1	(72)	R	V	S	I	L	A	D	E	S	T	S	T	S	F	I	E	L	S	N	L	R	S	D	T	A	V	Y	Y	C	A	R	D	P	P	R	Y	C	S	A	G	R	C	Y	P	G	F	F	Q	Q	W	G	Q	T	L	V	T	V	S	
heavy seq ID 2	(68)	R	L	S	I	T	A	L	D	S	T	S	T	A	Y	M	E	L	S	S	L	R	S	E	C	T	A	V	Y	F	C	A	R	V	V	I	P	N	A	I	R	---	H	T	M	G	Y	Y	F	D	Y	W	Q	G	T	L	V	T	V	S
heavy seq ID 3	(68)	R	V	S	I	L	A	D	E	S	T	S	T	A	Y	M	E	L	S	S	L	R	S	E	C	T	A	V	Y	C	A	K	D	P	P	R	F	C	S	G	G	N	C	Y	P	G	F	F	Q	Q	W	G	Q	T	L	V	T	V	S	
heavy seq ID 4	(67)	R	F	I	V	S	R	I	N	S	R	C	T	V	F	L	O	M	S	S	L	R	L	E	C	T	A	V	Y	Y	C	A	T	E	G	S	F	F	G	S	I	---	K	G	R	Y	Y	L	E	N	W	Q	G	T	L	V	T	V	S	
Consensus	(72)	R	V	S	I	L	A	D	E	S	T	S	T	S	F	I	E	L	S	N	L	R	S	D	T	A	V	Y	Y	C	A	R	D	P	P	R	Y	C	S	A	G	R	C	Y	P	G	F	F	Q	Q	W	G	Q	T	L	V	T	V	S	

CDR region comparison between different IDs

	CDR 1						
	(1)	1	6				
HCV heavy seq ID 1 CDR 1 (1)	(1)	G	H	V	T	T	---
HCV heavy seq ID 2 CDR 1 (1)	(1)	---	R	Y	T	I	Q
HCV heavy seq ID 3 CDR 1 (1)	(1)	G	H	V	I	S	---
HCV heavy seq ID 4 CDR 1 (1)	(1)	---	T	Y	G	M	H
Consensus (1)	(1)	G	H	V	T	T	---

	CDR 2																					
	(1)	1	21																			
HCV heavy seq ID 1 CDR 2	(1)	E	S	I	P	I	F	G	S	A	N	Y	A	Q	N	Y	A	Q	K	F	R	D
HCV heavy seq ID 2 CDR 2	(1)	N	I	I	F	V	Y	N	T	P	N	Y	A	Q	K	F	Q	---	---			
HCV heavy seq ID 3 CDR 2	(1)	G	S	I	S	F	F	G	T	S	N	S	A	Q	K	F	Q	---	---			
HCV heavy seq ID 4 CDR 2	(1)	---	G	I	S	F	D	G	S	N	O	Y	Y	A	D	S	V	K	G	---	---	
Consensus	(1)	E	S	I	P	I	F	G	S	A	N	Y	A	Q	N	Y	A	Q	K	F	R	D

	CDR 3																			
	(1)	1	19																	
HCV heavy seq ID 1 CDR 3	(1)	D	P	P	R	Y	C	S	A	G	R	C	Y	P	G	F	F	Q	---	
HCV heavy seq ID 2 CDR 3	(1)	---	---	V	V	I	P	N	A	I	R	H	T	M	G	Y	Y	F	D	Y
HCV heavy seq ID 3 CDR 3	(1)	D	P	P	R	F	C	S	G	G	N	C	Y	P	G	F	F	Q	---	
HCV heavy seq ID 4 CDR 3	(1)	---	---	---	E	G	S	P	F	G	S	I	K	G	R	Y	Y	L	E	N
Consensus	(1)	D	P	P	R	Y	C	S	A	G	R	C	Y	P	G	F	F	Q	---	

Note:

Figure 9B.
Comparison of deduced amino acid sequences
of ID's light chain genes

		CDR 1										CDR 2				
	(1)	1	10	20	30	40	50	60	70	80	90	100	110	120	130	
light chain seq ID 5	(1)	AEL	TQSP	CTIL	SL	SFGER	ATL	SCR	ASQ	SV	SSNY	LAWY	QCF	GC	AFRL	ITYG
light chain seq ID 7	(1)	AEL	TQSP	CTIL	SL	SFGER	ATL	SCG	ASQ	SV	SSNY	LAWY	QCK	FG	CAFR	LLITYG
light chain seq ID 6	(1)	AEL	TQSP	ATIL	SL	SFGER	ATL	SCR	ASQ	SVN	-KY	LAWY	QCK	FG	CAFR	LLITYD
light chain seq ID 8	(1)	AEL	TQSP	ATIL	SV	SFGER	ASL	SCR	ASQ	SVG	-NN	LAWY	QCK	FG	CAFR	LLITYG
Consensus	(1)	AEL	TQSP	GTIL	SL	SFGER	ATL	SCR	ASQ	SV	SSNY	LAWY	QCF	GC	AFRL	ITYG

		CDR 3														
	(57)	57	60	70	80	90	100	110	120	130	140	150	160	170	180	
light chain seq ID 5	(57)	GIP	DR	FS	GS	GS	CT	DF	IL	TIS	RL	EF	EL	FAVY	YC	LY
light chain seq ID 7	(57)	GIP	DR	FS	GS	GS	CT	DF	IL	TIS	RL	EF	EL	FAVY	YC	LY
light chain seq ID 6	(56)	GIP	DR	FS	GS	GS	CT	DF	IL	TIS	NL	EF	EL	FAVY	YC	LY
light chain seq ID 8	(56)	GIP	DR	FS	GS	GS	CT	DF	IL	TIS	SL	EF	EL	FAVY	YC	LY
Consensus	(57)	GIP	DR	FS	GS	GS	CT	DF	IL	TIS	RL	EF	EL	FAVY	YC	LY

CDR region comparison between different IDs

	CDR 1									
	(1)	1	10	20	30	40	50	60	70	80
light chain seq ID 5 CDR 1	(1)	R	A	S	C	S	V	S	S	N
light chain seq ID 7 CDR 1	(1)	C	A	S	C	S	V	R	S	N
light chain seq ID 6 CDR 1	(1)	R	A	S	C	S	V	N	K	Y
light chain seq ID 8 CDR 1	(1)	R	A	S	C	S	V	G	N	N
Consensus	(1)	R	A	S	C	S	V	S	S	N

	CDR 2									
	(1)	1	10	20	30	40	50	60	70	80
light chain seq ID 5 CDR 2	(1)	Y	G	A	S	S	R	A	T	
light chain seq ID 6 CDR 2	(1)	-	D	A	S	N	R	A	T	
light chain seq ID 7 CDR 2	(1)	-	C	V	S	S	R	A	T	
light chain seq ID 8 CDR 2	(1)	-	C	G	N	I	R	A	T	
Consensus	(1)	Y	G	A	S	S	R	A	T	

	CDR 3									
	(1)	1	10	20	30	40	50	60	70	80
light chain seq ID 5 CDR 3	(1)	C	L	Y	G	N	S	R	W	I
light chain seq ID 6 CDR 3	(1)	-	-	-	C	Q	R	S	D	W
light chain seq ID 7 CDR 3	(1)	C	C	Y	G	S	S	P	R	I
light chain seq ID 8 CDR 3	(1)	-	-	-	C	H	Y	S	T	W
Consensus	(1)	C	L	Y	G	N	S	R	W	I

Note:

Identical sequence: yellow background and red foreground.

Conservative sequence: light green background and blue foreground

Identical sequence: yellow background and red foreground.
Conservative sequence: light green background and blue foreground